

NW. 8 at 2 p. m. of the 27th in about 120° 28' longitude E. and 25° 43' latitude N.

The approximate position of the center at noon of the 27th was 122° 20' longitude E., 25° 20' latitude N.

## DETAILS OF THE WEATHER IN THE UNITED STATES

### GENERAL CONDITIONS

The month like its immediate predecessor was on the whole warm and dry. In the Southeast, the Southwest, and locally in some of the North Central States the drought of July was intensified with the result that a serious situation with respect to water for stock and even for domestic purposes obtained in many localities. The usual details follow.—A. J. H.

### CYCLONES AND ANTICYCLONES

By W. P. DAY.

Low-pressure areas were rather numerous, but none were important as storms with the exception of a very small disturbance which passed north of Bermuda on the 19th-20th. The latter attained nearly hurricane intensity over a short path northeast of Bermuda and was still in evidence on the 21st, south of Newfoundland.

High-pressure areas were about normal in number, but the majority, as in the preceding month, were of the so-called Alberta type. Five of the nine that were plotted carried through to the Atlantic coast, causing frequent alternations in temperature.

### FREE-AIR SUMMARY

By V. E. JAKL

The average free-air temperatures at the aerological stations show about normal values at all altitudes, except at Ellendale and Due West, where a slight, rather uniform, positive departure with altitude was recorded. (See Table 1.) Free-air temperatures from day to day showed but slight variation, closely following the average daily surface temperatures in that respect. Notwithstanding the unusual dryness over considerable areas represented by aerological stations, relative humidities aloft showed no corresponding deficiency, except at Due West, where they were decidedly below normal at all altitudes observed.

The free-air tables for this month include for the first time meteorological data from airplane observations recently begun at the naval air station at Washington, D. C. (See Table 3.) As this method of observation does not include the recording of wind velocity and direction, that portion of the data in Table 3 pertaining to wind is taken from the results of pilot-balloon observations made simultaneously, or nearly so, at the central office of the Weather Bureau at Washington, D. C., a short distance from the naval air station.

The free-air temperature record for Washington shows an average lapse rate about six-tenths of the dry adiabatic, which was probably about normal, inasmuch as the other aerological stations show the usual lapse rate for the time of year, ranging from slightly less to slightly greater than the value for Washington. The following record of the naval air observation on the 20th may be of interest in connection with the thundershower that fol-

Once in China the typhoon recurved to the north and northeast on the 28th and 29th to the west of Shanghai and on the 30th it traversed Korea and the Sea of Japan, moving ENE.

lowed it in a few hours. The storm occurred soon after the surface wind changed to northwesterly from southerly.

Altitude m. s. l. (meters)	Temperature, ° C.	$\Delta t$ 100 m.	Relative humidity (per cent)	Wind direction	Wind velocity (m. p. s.)
7.....	27.2	-----	69	SSW.	1
308.....	29.0	-0.45	48	WSW.	9
1,685.....	17.3	0.92	85	WNW.	7
3,066.....	9.7	0.55	36	WNW.	13
3,375.....	7.9	0.58	44	WNW.	15

Due West shows the only important exception to a general state of normal winds for the month, the records of that station giving resultant winds of northeasterly component up to about 1,500 meters, as distinguished from the normal condition of northeasterly winds at the surface only. These northeasterly winds of moderate depth were the effect of a predominant pressure condition over Due West consisting of HIGHS with centers to the north and northeast. As a result dry weather continued over Due West with but little interruption.

At Ellendale on the 23d the highest surface temperature of record for August occurred at the afternoon maximum, although the record high temperature for August at 1,000 to 2,500 meters above sea level occurred in the early morning of that date. The rise of temperature to the high maximum in the lowest few hundred meters was accomplished by a few hours of insolation, aided by the strong chinook wind which blew during the morning in question and probably also during the preceding night. The influence of the chinook was strong aloft during the night, but it seems to have been largely offset at the surface by radiation. The development of the high surface temperature in this case differs from that noted for Broken Arrow in the June, 1925, Free-Air Summary, where the heating was attributed to the cumulative effect of insolation in connection with light winds to great heights. A Low was centered north of Ellendale on the 22d and west of it on the 23d.

Altitude, m. s. l. (meters)	Temperature, ° C.	Relative humidity (per cent)	Wind		Temperature, ° C.	Relative humidity (per cent)	Wind	
			Direction	Velocity			Direction	Velocity
			Aug. 22				Aug. 23	
Surface (444).....	18.5	70	S.	9	22.0	76	SSE.	8
1,000.....	21.4	39	SSW.	10	32.4	22	SW.	22
2,000.....	20.8	23	WSW.	8	23.8	21	SSW.	19
3,000.....	11.6	23	SW.	6	14.2	43	SSW.	16

The kite flight at Drexel on the 18th is an illustration of change in wind direction at the surface and aloft attending the passage southeastward over the station of the center of a weak low-pressure area. The inversion above 1,000 meters due to colder northeast wind underneath is apparent from the figures; also the change to a